

Date: Wednesday, 07/01/2009 1:39:14 PM  
 User: Julie Dawson

## Process Sheet

SPHIT-#2

|                       |   |                  |                 |
|-----------------------|---|------------------|-----------------|
| Customer              | : CU-DAR001 Dart Helicopters Services   | Drawing Name     | : STEP WELDMENT |
| Job Number            | : 44490 -2  |                  |                 |
| Estimate Number       | : 12576   |                  |                 |
| P.O. Number           | :   | Part Number      | : D3562041      |
| This Issue            | : 07/01/2009 S.O. No. :   | Drawing Number   | : D3562 REV E   |
| Prsht Rev.            | : NC  | Project Number   | : N/A           |
| First Issue           | : / /   | Drawing Revision | : E             |
| Previous Run          | : 43512   | Material         | :               |
|                       | Type : LARGE FAB ASSY   | Due Date         | : 30/01/2009    |
| Written By            | :   | Qty:             | 3/4 Um: Each    |
| Checked & Approved By | : JUD 09-01-09  |                  |                 |
| Comment               | : Est Rev:A New Issue 06-11-09 JLM<br>Est rev B ECN 987 07-10-09 EC verified by: DD<br>Est Rev:C ECN1048 07-12-18 DD verified by:ec<br>Est Rev:D 08-07-28 add chemical conversion coat DD<br>verified by:EC |                  |                 |

## Additional Product

Job Number:



| Seq. #: | Machine Or Operation: | Description : |
|---------|-----------------------|---------------|
|---------|-----------------------|---------------|

|     |           |                |
|-----|-----------|----------------|
| 1.0 | D2622120C | Step Extrusion |
|-----|-----------|----------------|



Comment: Qty.: 1.0000 Each(s)/Unit Total : 4.0000 Each(s)

|     |            |             |        |
|-----|------------|-------------|--------|
| Qty | Part #     | Description | Batch: |
| 1   | D2622-120C | Extrusion   | B44064 |

Check Material for any Dents or Defects

SAD 09-02-12

|     |             |                              |
|-----|-------------|------------------------------|
| 2.0 | LARGE FAB 1 | LARGE FABRICATION RESOURCE 1 |
|-----|-------------|------------------------------|



Comment: LARGE FABRICATION RESOURCE 1

1-Cut D2622 extrusion as per Dwg D3562

2-Deburr and bevel ends for welding

SAD 09-02-12 (4)

|     |     |                              |
|-----|-----|------------------------------|
| 3.0 | QC5 | INSPECT WORK TO CURRENT STEP |
|-----|-----|------------------------------|



Comment: INSPECT WORK TO CURRENT STEP

SAD 09-02-12 (4)

|     |                 |                            |
|-----|-----------------|----------------------------|
| 4.0 | HAND FINISHING1 | HAND FINISHING RESOURCE #1 |
|-----|-----------------|----------------------------|



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

SAD 09-02-12 (4)

Wednesday, 07/01/2009 1:39:14 PM

Julie Dawson

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: STEP WELDMENT

Job Number: 44490

Part Number: D3562041

Job Number:



Seq. #:

Machine Or Operation:

Description:

5.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



4X

Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

M-1 09/02/26

6.0

D3560041

Arm Weldment



Comment: Qty.: 1.0000 Each(s)/Unit Total: 4.0000 Each(s)

ARM WELDMENT

Batch: 1341067

SAD 09-02-26 (4)

7.0

D3560043

Arm Weldment



Comment: Qty.: 1.0000 Each(s)/Unit Total: 4.0000 Each(s)

ARM WELDMENT

Batch: B41068

SAD 09-02-26 (4)

8.0

MS20600AD4W5

Blind Rivet



Comment: Qty.: 32.0000 Each(s)/Unit Total: 128.0000 Each(s)

Blind Rivet

batch: M110427

SAD 09-02-26 (4)

9.0

SMALL FAB 1

SMALL & MEDIUM FAB RESOURCE 1



Comment: SMALL & MEDIUM FAB RESOURCE 1

PTO

1- Transfer drill Rivet holes as per dwg D3562.

2-Touch-up rivet holes with alodine as per dwg d3562

3-Rivet legs using Magnabond as per dwg D3562.

\*\*\*\*\*Ensure to wipe off any excess magnobond \*\*\*\*\*

A/R Magnabond 6398

Batch: M108966

SAD 09-03-03 (8)

10.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

09/03/04 (43)

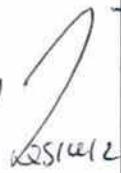



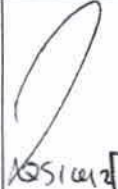
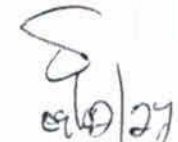
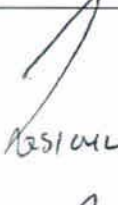




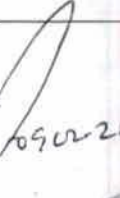


Dart Aerospace Ltd

| W/O: |      | WORK ORDER CHANGES |    |      |     |                                     |                          |
|------|------|--------------------|----|------|-----|-------------------------------------|--------------------------|
| DATE | STEP | PROCEDURE CHANGE   | By | Date | Qty | Approval<br>Chief Eng /<br>Prod Mgr | Approval<br>QC Inspector |
|      |      |                    |    |      |     |                                     |                          |
|      |      |                    |    |      |     |                                     |                          |

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

| NCR:     |      | WORK ORDER NON-CONFORMANCE (NCR)   |   |   |                 |   |   |   |
|----------|------|--|---|---|-----------------|---|---|---|
| DATE     | STEP | Description of NC<br>Section A   | Corrective Action<br>Section B  |   |                 | Verification<br>Section C   | Approval<br>Chief Eng   | Approval<br>QC Inspector  |
|          |      |  | Initial<br>Chief Eng  | Action Description<br>Chief Eng   | Sign &<br>Date  |   |   |   |
| 09-02-27 | 9.0  | 4 steps affected as th 1 on 2 holes per step affected. total 6 holes affected. Upon replacing rivets, Employee slightly ovalized the holes by 0.05".<br><br>RC Improper technique. |   | Re-train employee to drill straight <u>ONLY</u> removing the rivet head, and to punch out the remaining rivet. Not to drill all the way through. Also to properly stabilize the when working on it. | SAN<br>09-02-26 |  |   |   |
|          |      |  |  | Replace only 6 rivets with JVA alternate rivets available.<br>Remove the affected arms.<br>Fill the affected holes with weld on both arm: step per assembly.  | SAN<br>09-02-26 |  |  |  |
|          |      |  |  | Re-ASSEMBLE w/ magna bond per chg, and transfer drill the affected holes <u>After</u> ASSY as per chg details: elabor.<br><br>Re-align prior to assy per CSI COS.                                   | SAN<br>09-02-26 |  |  |  |

NOTE: Date & initial all entries

Wednesday, 07/01/2009 1:39:14 PM

Julie Dawson

## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: STEP WELDMENT

Job Number: 44490

Part Number: D3562041

Job Number:



| Seq. #: | Machine Or Operation: | Description : |
|---------|-----------------------|---------------|
|---------|-----------------------|---------------|

|      |       |                |
|------|-------|----------------|
| 11.0 | D2734 | Step End Plate |
|------|-------|----------------|



Comment: Qty.: 2.0000 Each(s)/Unit Total: 8.0000 Each(s)

Pick:

Qty Part Number Description Batch

2 D2734

End Cap

43535

⑥

BE 09/03/05

|      |             |                              |
|------|-------------|------------------------------|
| 12.0 | LARGE FAB 1 | LARGE FABRICATION RESOURCE 1 |
|------|-------------|------------------------------|



Comment: LARGE FABRICATION RESOURCE 1

1-Weld end caps as per Dwg D3562& QSI 004. Inspect for foreign objects as per QSI 024.

A/R Aluminum Rod

M109213

BE

09/03/05

2-Grind end cap welds flush as per Dwg D3562

SAD 09-03-06

⑩

|      |     |                           |
|------|-----|---------------------------|
| 13.0 | QC9 | VISUAL WELDING INSPECTION |
|------|-----|---------------------------|



Comment: VISUAL WELDING INSPECTION

ID 09-03-06

|      |     |                              |
|------|-----|------------------------------|
| 14.0 | QC5 | INSPECT WORK TO CURRENT STEP |
|------|-----|------------------------------|



Comment: INSPECT WORK TO CURRENT STEP

S 09/03/06 ④3-040

|      |                 |                            |
|------|-----------------|----------------------------|
| 15.0 | HAND FINISHING1 | HAND FINISHING RESOURCE #1 |
|------|-----------------|----------------------------|



Comment: HAND FINISHING RESOURCE #1

Chemical Conversion Coat as per QSI 005 4.1

Q-m 09-03-06

|      |                |                |
|------|----------------|----------------|
| 16.0 | POWDER COATING | POWDER COATING |
|------|----------------|----------------|



Comment: POWDER COATING

Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

START TIME:

7:35

OVEN TEMPERATURE:

320°

FINISH TIME:

9:05

umad/h

09-03-10

⑩



## Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: STEP WELDMENT

Job Number: 44490

Part Number: D3562041

Job Number:



| Seq. #: | Machine Or Operation: | Description : |
|---------|-----------------------|---------------|
|---------|-----------------------|---------------|

|      |                 |                            |
|------|-----------------|----------------------------|
| 17.0 | HAND FINISHING1 | HAND FINISHING RESOURCE #1 |
|------|-----------------|----------------------------|



Comment: HAND FINISHING RESOURCE #1

Wing Walk as per Dwg D3562 and QSI 005 4.4

Batch: M110454

HL 09-03-10

(X2)

|      |     |   |
|------|-----|---|
| 18.0 | QC3 | INSPECT POWDER COAT/CHEMICAL CONVERSION |
|------|-----|---|



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

FL 09/03/10

|      |             |                       |
|------|-------------|-----------------------|
| 19.0 | PACKAGING 1 | PACKAGING RESOURCE #1 |
|------|-------------|-----------------------|



Comment: PACKAGING RESOURCE #1

Pick Assembly Kit

6-A

09/03/13

(2)

|      |      |                              |
|------|------|------------------------------|
| 20.0 | QC21 | FINAL INSPECTION/W/O RELEASE |
|------|------|------------------------------|



(2)

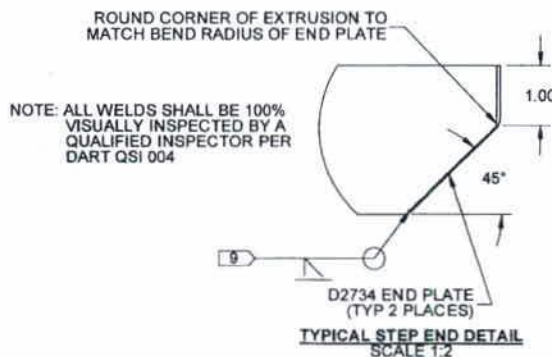
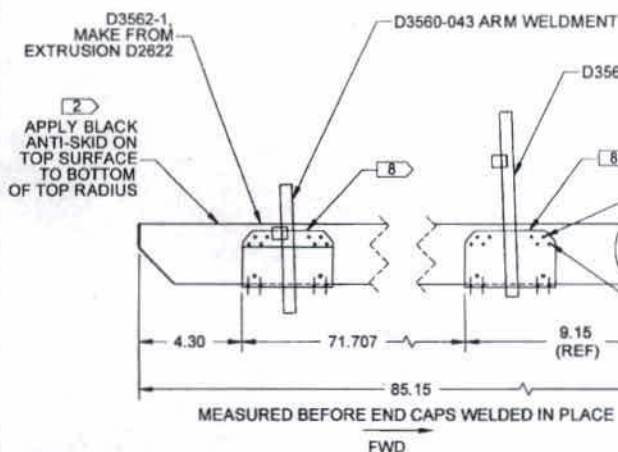
Comment: FINAL INSPECTION/W/O RELEASE

09/03/16

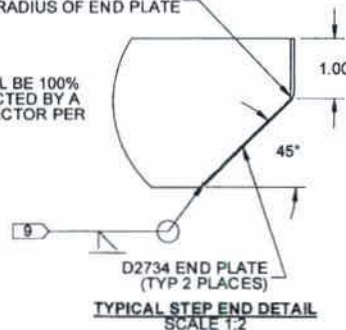
Job Completion



U 09.03.16



NOTE: ALL WELDS SHALL BE 100% VISUALLY INSPECTED BY A QUALIFIED INSPECTOR PER DART QSI 004



### D3562-041 LH STEP ASSEMBLY

- NOTES:
- 1) MATERIAL: N/A
  - 2) FINISH: WITHOUT TREATMENT
  - 3) CHEMICAL CONVERSION COAT STEP EXTRUSION PER DART QSI 005.4.1 BEFORE ASSEMBLY
  - 4) POWDER COAT ASSEMBLY GLOSS WHITE (4.3.5.1) OR GREY SANDING (4.3.5.6) OR BLACK SANDING (4.3.5.7) OR GREEN SANDING (4.3.5.8) PER DART QSI 005.4.3
  - 5) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
  - 6) UNITS: INCHES UNLESS OTHERWISE NOTED
  - 7) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
  - 8) IDENTIFICATION: NONE
  - 9) WEIGHT: 8.79 lbs
  - 10) INSTALL ARM WELDMENTS WITH A LAYER OF MAGNOBOND 6398 BETWEEN THE ARM WELDMENT AND STEP EXTRUSION. FILL ANY TOOLING HOLES WITH MAGNOBOND 6398. CLEAN OFF EXCESS BEFORE POWDER COATING.
  - 11) WELDING: PER DART QSI 004

| QTY -041 | QTY -042 | P/N          | DESCRIPTION      |
|----------|----------|--------------|------------------|
| X        | X        | D3562-041    | LH STEP ASSEMBLY |
|          |          | D3562-042    | RH STEP ASSEMBLY |
| 1        |          | D3560-041    | ARM WELDMENT     |
|          | 1        | D3560-042    | ARM WELDMENT     |
| 1        |          | D3560-043    | ARM WELDMENT     |
|          | 1        | D3560-044    | ARM WELDMENT     |
| 32       | 32       | MS20600AD4W5 | RIVET            |
| 2        | 2        | D2734        | END PLATE        |

### D3562-042 RH STEP ASSEMBLY

|            |   |    |          |
|------------|---|----|----------|
| E          | ADD QTY (2) TO D2734 END PLATE ON D3562-042     | PH | 08.01.11 |
| D          | REMOVE D2808 SPACER NOTE; REDRAWN IN SOLIDWORKS | DC | 07.11.16 |
| C          | NOW MAGNOBOND, ADD D2808, REMOVE 4 RIVETS       | CP | 07.06.19 |
| B          | ARMS NOW RIVETED TO STEP                        | CP | 07.01.15 |
| A          | NEW ISSUE                                       | CP | 06.09.26 |
| REV.       | DESCRIPTION                                     | BY | DATE     |
| DESIGN     | gp  |    |          |
| DRAWN      | sf  |    |          |
| CHECKED    | LE  |    |          |
| MFG. APPR. |   |    |          |
| APPROVED   |   |    |          |
| DE APPR.   |   |    |          |
| DATE       | 08.01.11  |    |          |

**DART AEROSPACE LTD**  
HAWKESBURY, ONTARIO, CANADA

DRAWING NO. **D3562** REV. E  
TITLE **STEP ASSEMBLY** SCALE 1:5

COPYRIGHT © 2008 BY DART AEROSPACE LTD  
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL. IT IS SUPPLIED ON THE EXPRESS UNDERSTANDING THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR DISCLOSED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.